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# MUSIC **5000** SYNTHESISER

## Important news for Music 500 owners

The Hybrid Music 5000 Synthesiser is the successor to the now discontinued Music 500. The major improvements are as follows:

- 1 AMPLE Nucleus - an advanced ROM-based version of the language with many new features and the ability to support software and hardware extensions
- 2 Studio 5000 - an easy-to-use 'front-end' extension to AMPLE including a master menu, instrument editor and staff notation editor
- 3 Resident pre-defined instruments, envelopes and waveforms, selectable by name and, in the case of instruments, fully editable. Additional sound words give improved instruments, particularly percussive types.
- 4 Extensibility - software extension 'modules' to support further hardware units and provide additional software functions
- 5 Documentation particularly directed at beginners, including a guide to AMPLE music notation with many musical examples
- 6 Compatibility with BBC Microcomputers B+, B+ 128K, and Master 128

The Music 500 and Music 5000 Synthesiser units are entirely software compatible, and all these improvements but the last are available to Music 500 owners in the form of a Music 500 Upgrade Pack. This contains the software (ROM and cassette, with a program to transfer to disc) and documentation parts of the Music 5000 package. All specifications of the Music 5000 apply to the upgraded Music 500, except compatibility with models other than the Model B.

The Music 500 Synthesiser hardware is incompatible with the BBC Microcomputers B+, B+ 128K, and Master 128, and the upgrade pack does not remedy this.

### **Music 5000 — Specification**

The Music 5000 is a powerful music production package for the BBC Microcomputer, consisting of a high-quality digital synthesiser unit controlled from the music language AMPLE. Pieces of music and other musical programs are built up in AMPLE by programming or entry of music and sound information using user-friendly editors.

The synthesiser can play up to 16 sounds at once, usually organised as eight musical voices. Control over a wide range of sound parameters including waveforms, envelopes, modulation and stereo allow a vast range of instrument sounds to be created by the user. Many preset instruments, waveforms and envelopes are provided for easy selection by name.

AMPLE is the most powerful micro music language ever produced, offering enormous possibilities for creating music. The heart is the AMPLE Nucleus ROM, which provides the basic programming and music notation words, and the operating system facilities which support RAM-based extensions for specific applications. Studio 5000 is the extension that supports the Music 5000, providing an integrated set of modules for sound design and music entry, both in textual and traditional staff form. All sound and music definitions created with Studio 5000 are standard AMPLE words, allowing free mixture of different types of data to make a complete piece.

Features:

#### **AMPLE**

A powerful and versatile music language with

- ★ music notation and sound commands
- ★ concurrency for multiple parts and real-time editing
- ★ complete control over musical parts, sections, loops etc.
- ★ 'word' structuring of user programs
- ★ arithmetic, loops, conditionals, strings, variables and arrays
- ★ music operating system supporting extensions and front ends
- ★ compatibility with further hardware add-ons such as keyboard and MIDI

#### **Studio 5000**

A suite of integrated music and sound editors providing an easy-to-use interface to the AMPLE language for using the Music 5000. Studio 5000 includes:

##### **Master Menu**

With single-key or cursor selection of all major functions including program run, stop, load and save, and selection of editors. Users can create their own menus, just providing display and action definitions.

##### **NotePad**

A screen editor for AMPLE words and scores with insert/delete character/line and immediate play of the score being edited at any time.

##### **Panel**

A versatile control panel primarily for editing instrument definitions. The parameters are presented on a single screen and can be adjusted in-place with the editing cursor, with drop-down menus for waveform and envelope choices. Any instrument of a piece can be edited while playing. The Panel can also be used as a front end to any user program which provides its control interfaces as simple words.

##### **Mixing Desk**

For controlling the instruments and balance for the voices in a piece. Individual level fader, pan control, instrument selection, manual gate and activity indicator for each voice. All controls work in real time and reflect changes programmed in the music. Includes additional pause, fast wind, restart and group mix functions.

##### **Staff Editor**

Allowing traditional notation to be entered and edited. The set of symbols includes the normal notes, rests etc., plus chords, dots and double-dots, single and multiple ties, triplets and duplets. Commands for repeats, dynamics, instrument changes etc can be included at any point. The Staff Editor uses and creates standard AMPLE words.

##### **Special Effects**

Multiple echoes on successive voices, simulated reverb, articulation control, etc.

##### **Voices**

Eight musical voices in total (up to eight notes can be played simultaneously), with between 0 and 16 of the channels on any voice. Independent control of instrument selection, pitch, transposition, detuning, dynamic level, overall (voice) volume and overall (voice) stereo position.

##### **Channels**

16 channels (up to 16 sounds can be made simultaneously), assigned in pairs to musical voices. Most instruments use two channels per voice. Independent control of channel volume, channel transposition (pitch shift), channel stereo position, waveform, pitch envelope, amplitude envelope, frequency offset, ring modulation, frequency modulation, synchronisation, wave phase initialisation and inversion. Pitch resolution of 1/16 semitone. Offset frequency resolution of 0.0056 Hz.

##### **Waveforms**

14 predefined waveforms, independently selectable by each channel. Includes basic synthesiser, natural instrument and special effects shapes. All waveforms can be extended by use of modulations.

#### **Pitch envelopes**

10 predefined shapes, independently selectable by name for each channel. Includes vibrato, natural delayed vibrato, bends, slides, swoops etc. Pitch envelopes can also be used as tone envelopes with modulation.

#### **Amplitude envelopes**

10 predefined shapes, independently selectable by name for each channel. Includes synthesiser ASDR, decay, percussive, organ, slow attack, repeating, echo, etc.

#### **Modulation**

Ring modulation, frequency modulation and synchronisation of channel pairs.

#### **Instruments**

Combinations of channel, waveform, envelope, modulation and other settings to produce a particular sound for a musical voice. Independently selectable by name for each voice or voice group at start of music and any point during music. 20 predefined instruments, including abstract, simulated natural, synthesiser, percussion and special effect. User-definable instruments, using a full set of sound commands. Instruments can be created by editing existing instruments, or making extended definitions with specific additional parameter adjustments.

#### **Stereo**

Seven positions from full left to full right. Stereo instruments and/or stereo positioning of voices available, with balance correction at limits.

#### **Output**

Channel output sampling rate of 46.875/sec

Level of up to 2V peak-to-peak

5-pin DIN standard audio connector.

#### **Connections**

Audio output

1 MHz bus with pass-on for compatible equipment

Mains input with power switch.

#### **Documentation**

Three manuals supplied:

User Guide (128 pages)

An introductory guide to setting up and using the package to create pieces of music using the Studio 5000 software

Introduction to AMPLE

A step-by-step beginners guide to getting the best from the system by programming music in AMPLE notation. Includes over 25 musical examples and many illustrations

Rudiments of Sound and Music (32 pages)

A clear and simple explanation of sound synthesis and music notation for beginners to computer music.

#### **Example programs**

Over 12 carefully-presented example pieces demonstrating various aspects of the package.

#### **Software format**

Supplied on ROM, and cassette with a program for transfer to disc.

#### **Other equipment required**

BBC Microcomputer Model B (shadow RAM recommended), B+, or Master 128. Disc drive, Acorn-compatible (not essential, but recommended). Amplifier, e.g. home stereo, with suitable audio connection lead.

The Music 5000 is the successor to the outstanding Music 500 which, when launched at the end of 1984, was hailed by the press as the most powerful package of its kind:

"The quality of sound is simply superb" — Electronics and Music Maker

"Performance is nothing short of spectacular" — Micro User

"A truly revolutionary piece of hardware" — What Micro

"The sound facilities are stunning" — Personal Computer World

Amongst the many advantages that Music 5000 offers over the Music 500 are:

- 1 An integrated 'front-end' of easy-to-use music and sound editors.
- 2 Powerful ROM-based operating software.
- 3 Easily-accessed pre-defined instrument sounds.
- 4 Special effects including multiple echo, articulations and pitch slides.
- 5 Compatibility with additional hardware units such as keyboard and MIDI.
- 6 Extensibility to support additional music applications software.
- 7 Compatibility with the BBC Master 128.

The Music 5000 Synthesiser unit also has minor hardware improvements, but is entirely software compatible with the Music 500 unit.

```

program "timeout" module "PANEL"
r run program
x start program
l load program
s save program
n start new program
t notepad
k keyboard
m mixing desk
p instrument panel
e staff editor
i microphone input
$ OS command

% SHOW
bellwave decayenv      detunenv      percenv
indianbell              jupiter       sinewave
simplepenv               ss6
ss7
10 words STA data

```

STUDIO 8000 Staff Editor ID 108762  
editing "Miller" bar 14

XX"Miller" NAME  
ZRUN  
X

editing "mix" 12. 3BAR

OFF PAUSE	OFF FAST	DFF group					
125 tempo	0 tune	17 bars					
1	2	3	4	5	6	7	8
Voice	1-1	2-1	3-1	4-1	4-2	4-3	4-4
magicflut	synpian	bassdrum					
ins vibblock	synpian	cymbal					
zing	synpian						
Pan	0	0	0	0	0	0	0
Date	...	...	...	...	...	...	...
Vol	...	...	...	...	...	...	...

editing "Jupiter"

SCORE 24.

```

-1:EG A/ACbg CDc/b/ aB/a/g/ e/// 
-1:EG A/ACbg CDE/E/ Edc/D/ c/// 
-1:Ge d/d/cE d/c/Ge d/d/EG a/// 
-1:AB C/b/a/ g/C/e/ dcD/E/ G/// 
-1:EG A/ACbg CDc/b/ aB/a/g/ e/// 
-1:EG A/ACbg CDE/E/ Edc/D/ c///

```

bellwave decayenv detunenv percenv
indianbell jupiter sinewave
simplepenv ss6
ss7
10 words STA data
X

editing "indianbell" trying "RETURNRATE"

2 CHANS			
1 CHAN			
sinewave	decayenv	simplepenv	
34 SHIFT	ON RH	DFF SYNC	
2 CHAN			
bellwave	percenv	detunenv	
0 SHIFT	300 OFFS	128 AMP	

Aux:	EDIT	NAME	
RETURNRATE	RUN	TRY	
X	X	X	

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